Amendments To The Claims:

Please amend the claims as shown.

1 – 14 (canceled)

15. (new) A method for designing a technical system, including state variables and diagnostic variables that depend on the state variables, comprising:

specifying the technical system by a system of equations and with the state variables being the solutions of the system of equations;

analyzing a measurement park, incorporating a first measured variable and the first measured variable is measured in the technical system with a prescribed accuracy and depend on the state variables;

measuring a second measured variable, which depends on the state variables, in the technical system with a predetermined accuracy;

determining sensitivity variables for the first measured variable and/or the second sensitivity variable for the second measured variable;

determining the magnitude of the influence which a change in the accuracy of measurement of the first measured variable has at least one selected parameter to determine the first sensitivity variable, and to determine the second sensitivity variable, a determination is made of the magnitude of the influence which the measurement of the second measured variable has at least one selected parameter;

changing the measurement park, depending on the first and/or second sensitivity variable, in such a way that the accuracy of the first measured variable is changed and/or the first measured variable is taken out of the measurement park and/or the second measured variable is added into the measurement park; and

using an amended measurement park in designing the technical system.

16. (new) The method in accordance with claim 15, wherein the accuracy of the first measured variable is increased if the first sensitivity variable for this measured variable lies within a predefined value range and/or the first measured variable is taken out of the measurement park if the first sensitivity variable for this measured variable lies within

a predefined value range and/or the second measured variable is added into the measurement park if the second sensitivity variable for this measured variable lies within a predefined value range.

17. (new) The method in accordance with claim 16, wherein the technical system is described by a system of equations $H(x)=(H_1(x),...,H_m(x))=0$, where $x=(x_1,...,x_n)$ is a vector in which the components are the state variables x_i.

18. (new) The method in accordance with claim 17, wherein the following matrices are calculated: a matrix N, which spans the null space of the Jacobian matrix of H, a matrix W, such that $W^T \cdot W$ is the inverse of the covariance matrix of the first measured variables $y_i=b_i(x)$, where the entries in the covariance matrix are the covariances $\sigma_{ij}^2 = E((y_i - E(y_i))(y_j - E(y_j)))$, where E(y) is the expected value of y, a matrix M which is the pseudoinverse matrix of $A=W \cdot Db \cdot N$, where Db is the Jacobian matrix of the first measured variables $y_i=b_i(x)$.

19. (new) The method in accordance with claim 18, wherein at least one of the selected parameters is a selected state variable which can be determined via the first measured variables, one or more of the first sensitivity variables $\Phi_{y_j x_l}$ represents in each case the ratio of the change in accuracy $\Delta\sigma_{ll}^2/x_l = \Delta E((x_l - E(x_l))^2)/x_l$ of the selected state variable x_l to the change in accuracy $\Delta\sigma_{jj}^2/y_j = \Delta E((y_j - E(y_j))^2)/y_j$ of a first measured variable y_j, the first sensitivity variables are determined from the following formula:

$$\Phi_{y_j x_l} = \frac{\sigma^2_{jj}}{\sigma^2_{ll}} \cdot r^2_{lj}$$

where r_{lj} is the element in the l^{th} line and the j^{th} column of the matrix $N \cdot M \cdot W$.

20. (new) The method in accordance with claim 19, wherein one of the selected parameters is a selected diagnostic variable which can be determined via the first measured variables, a matrix Dd is determined, this being the Jacobian matrix of the diagnostic variables $d_i=d_i(x)$, one or more of the first sensitivity variables $\Phi_{y_j d_n}$ represents

in each case the ratio of the change in accuracy $\Delta\sigma_{nn}^2/d_n = \Delta E((d_n - E(d_n))^2)/d_n$ of the selected diagnostic variable d_n to the change in accuracy $\Delta\sigma_{jj}^2/y_j = \Delta E((y_j - E(y_j))^2)/y_j$ of a first measured variable y_j, the first sensitivity variables are determined by the following formula:

$$\Phi_{y_j d_n} = \frac{\sigma^2_{jj}}{\sigma^2_{nn}} \cdot s^2_{nj}$$

where s_{nj} is the element in the n^{th} line and the j^{th} column of $Dd \cdot N \cdot M \cdot W$.

21. (new) The method in accordance with claim 20, wherein at least one of the selected parameters is a selected state variable which can be determined via the first measured variables, one or more of the second sensitivity variables represents, in each case, the variance $\sigma_{k\text{->}xl}^2$ of the selected state variable x_l when a second measured variable, the value of which is a state variable x_k with the variance σ_k, is being added to the measurement park, the second sensitivity variables are determined by the following formula:

$$\sigma^2_{k\text{->}xl} = m_l^T \cdot m_l - \frac{(m_k^T \cdot m_l)^2}{\sigma_k^2 + m_k^T \cdot m_k},$$

where m_i is the i^{th} column of the matrix $M^T \cdot N$.

22. (new) The method in accordance with claim 21, wherein at least one of the selected parameters is a selected diagnostic variable which can be determined via the first measured variables, a matrix Dd, which is the Jacobian matrix of the diagnostic variables $d_i = d_i(x)$, is determined, one or more of the second sensitivity variables represents, in each case, the variance $\sigma_{k\text{->}dn}^2$ of the selected diagnostic variable d_n when a second measured variable, the value of which is a state variable x_k which has a variance σ_k, is being added to the measurement park, the second sensitivity variables are determined by the following formula:

$$\sigma^2_{k\text{->}dn} = q_n^T \cdot q_n - \frac{(m_k^T \cdot q_n)^2}{\sigma^2_k + m_k^T \cdot m_k}$$

where m_i is the i[th] column of the matrix $M^T \cdot N^T$, and q_n is the n[th] column of the matrix and $M^T \cdot N^T \cdot Dd^T$.

23. (new) The method in accordance claim 22, wherein at least one of the selected parameters is a selected state variable which cannot be determined via the first measured variables, a matrix P, which is the orthogonal projection onto the null space of A, is determined, a second measured variable is determined, the value of which is a state variable x_k, and which is to be added into the measurement park so that the selected state variable can be uniquely determined, one of the second sensitivity variables represents the variance $\sigma_{k->xl}^2$ of the selected state variable when the second measured variable x_k which has been determined, and which has the variance σ_k, is being added to the measurement park, the second sensitivity variable is determined by the following formula:

$$\sigma^2_{k->xl} = \sigma^2_k \cdot \frac{\|p\|^2}{\|p_k\|^2} + \left\| m_l - \frac{\|p\|}{\|p_k\|} m_k \right\|^2,$$

with $p = Pn_l$, where n_l is the l[th] column of the matrix N^T, and m_i is the i[th] column of the matrix $M^T \cdot N^T$ and p_k is the k[th] column of the matrix $P \cdot N^T$.

24. (new) The method in accordance with claim 23, wherein at least one of the selected parameters is a selected diagnostic variable which cannot be determined via the first measured variables, a matrix Dd, which is the Jacobian matrix of the diagnostic variables $d_i = d_i(x)$, is determined, a matrix P, which is the orthogonal projection onto the null space of A, is determined, a second measured variable is determined, the value of which is a state variable x_k, and which is to be added into the measurement park so that the selected state variable can be uniquely determined, one of the second sensitivity variables represents the variance $\sigma_{k->dn}^2$ of the selected diagnostic variable d_n when the second measured variable x_k which has been determined, and which has the variance σ_k, is being added into the measurement park, the second sensitivity variable is determined by the following formula:

$$\sigma^2_{k\text{->}dn} = \sigma^2_k \cdot \frac{\|p\|^2}{\|p_k\|^2} + \left\| M^T \cdot c_n - \frac{\|p\|}{\|p_k\|} m_k \right\|^2,$$

with $p = Pc_n$, where c_n is the n[th] column of the matrix $N^T \cdot Dd^T$, m_k is the k[th] column of the matrix $M^T \cdot N^T$ and p_k is the k[th] column of the matrix $P \cdot N^T$.

25. (new) The method in accordance with claim 24, wherein the matrix $P \cdot N^T$ is searched for the column such that p is a linear function of this column, where the index k of this column specifies that the second measurement value x_k is to be added into the measurement park so that the selected parameter can be uniquely determined.

26. (new) The method in accordance with claim 25, wherein the standard deviation σ_k of the second measured variable is 1% of the value of the second measured variable.

27. (new) A device for analyzing a technical system, comprising:

a storage medium;

a computer program stored on the storage medium, wherein the computer program is executed to accomplish the following method;

specifying the technical system by a system of equations and a plurality of state variables being the solutions of the system of equations;

analyzing a measurement park, incorporating a first measured variable and the first measured variable is measured in the technical system with a prescribed accuracy and depends on the state variables;

measuring a second measured variable, which depends on the state variables, in the technical system with a predetermined accuracy;

determining sensitivity variables for the first measured variable and/or the second sensitivity variable for the second measured variable;

determining the magnitude of the influence which a change in the accuracy of measurement of the first measured variable has at least one selected parameter to determine the first sensitivity variable, and to determine the second sensitivity variable, a determination is made of the magnitude of the influence which the measurement of the second measured variable has at least one selected parameter;

changing the measurement park, depending on the first and/or second sensitivity variable, in such a way that the accuracy of the first measured variable is changed and/or the first measured variable is taken out of the measurement park and/or the second measured variable is added into the measurement park; and

using an amended measurement park in designing the technical system.

28. (new) The method in accordance with claim 27, wherein the accuracy of the first measured variable is increased if the first sensitivity variable for this measured variable lies within a predefined value range and/or the first measured variable is taken out of the measurement park if the first sensitivity variable for this measured variable lies within a predefined value range and/or the second measured variable is added into the measurement park if the second sensitivity variable for this measured variable lies within a predefined value range.

29. (new) The method in accordance with claim 28, wherein the technical system is described by a system of equations $H(x)=(H_1(x),\ldots,H_m(x))=0$, where $x=(x_1,\ldots,x_n)$ is a vector in which the components are the state variables x_i.

30. (new) The method in accordance with claim 29, wherein the following matrices are calculated: a matrix N, which spans the null space of the Jacobian matrix of H, a matrix W, such that $W^T \cdot W$ is the inverse of the covariance matrix of the first measured variables $y_i=b_i(x)$, where the entries in the covariance matrix are the covariances $\sigma_{ij}^2 = E((y_i - E(y_i))(y_j - E(y_j)))$, where $E(y)$ is the expected value of y, a matrix M which is the pseudoinverse matrix of $A=W \cdot Db \cdot N$, where Db is the Jacobian matrix of the first measured variables $y_i=b_i(x)$.